

## CLAIMS

1. A signal processing system for a construction machine comprising a prime mover (10), a variable displacement hydraulic pump (1, 2) driven by said prime mover, a fuel injection device (14) for controlling fuel injection in said prime mover, input means (71) for commanding a target revolution speed of said prime mover, revolution speed detecting means (72) for detecting an actual revolution speed of said prime mover, fuel injection control means (70B, 70Ba) for controlling a fuel injection state of said fuel injection device in accordance with the target revolution speed commanded from said input means and the actual revolution speed detected by said revolution speed detecting means, and pump torque control means (7, 8, 32, 70A, 70Aa) for controlling a maximum absorption torque of said hydraulic pump in accordance with the target revolution speed commanded from said input means and the actual revolution speed detected by said revolution speed detecting means, wherein said signal processing system further comprises:

a plurality of environment detecting means (75-83) for detecting status variables related to environments of said prime mover (10) or said hydraulic pump (1, 2) and outputting respective corresponding detected environment signals;

environment modifying means (70Ab, 70i, 70Bb, 70x1-70x4) for receiving the detected environment signals and

modifying, in accordance with the detected environment signals, at least one of the fuel injection state of said fuel injection device (14) controlled by said fuel injection control means (70B, 70Ba) and the maximum absorption torque of said hydraulic pump controlled by said pump torque control means (7, 8, 32, 70A, 70Aa);

communication control means (70C) for obtaining, from an external terminal (150) via communication, alteration data for altering one or more computation elements contained in at least one of said fuel injection control means, said pump torque control means and said environment modifying means; and

computation element altering means (171, 181) for altering the computation elements based on the alteration data obtained by said communication control means.

2. A signal processing system for a construction machine according to Claim 1, wherein:

said environment modifying means is pump torque modifying means (70Ab, 70i) for modifying the maximum absorption torque of said hydraulic pump (1, 2), which is controlled by said pump torque control means (7, 8, 32, 70A, 70Aa), in accordance with the detected environment signals by using a predetermined computation element for torque modification; and

said communication control means (70C) is means for obtaining, from said external terminal (150), alteration data for altering the computation element for torque

modification, and said computation element altering means (171) is means for altering the computation element for torque modification based on the obtained alteration data.

3. A signal processing system for a construction machine according to Claim 1, wherein:

    said environment modifying means is fuel injection modifying means (70Bb, 70x1-70x4) for modifying the fuel injection state of said fuel injection device (14), which is controlled by said fuel injection control means (70B, 70Ba), in accordance with the detected environment signals by using a predetermined computation element for injection modification; and

    said communication control means (70C) is means for obtaining, from said external terminal (150), alteration data for altering the computation element for injection modification, and said computation element altering means (181) is means for altering the computation element for injection modification based on the obtained alteration data.

4. A signal processing system for a construction machine according to Claim 1, wherein:

    said environment modifying means includes pump torque modifying means (70Ab, 70i) for modifying the maximum absorption torque of said hydraulic pump, which is controlled by said pump torque control means, in accordance with the detected environment signals by using a

predetermined computation element for torque modification, and fuel injection modifying means (70Bb, 70x1-70x4) for modifying the fuel injection state of said fuel injection device, which is controlled by said fuel injection control means, in accordance with the detected environment signals by using a predetermined computation element for injection modification; and

said communication control means (70C) is means for obtaining, from said external terminal (150), alteration data for altering the computation element for torque modification and the computation element for injection modification, and said computation element altering means (171, 181) are means for altering the computation element for torque modification and the computation element for injection modification based on the obtained alteration data.

5. A signal processing system for a construction machine according to Claim 1, wherein:

said pump torque control means (7, 8, 32, 70A, 70Aa) is means for controlling the maximum absorption torque of said hydraulic pump (1, 2) based on the target revolution speed and the actual revolution speed by using a predetermined computation element for torque control; and

said communication control means (70C) is means for obtaining, from said external terminal (150), alteration data for altering the computation element for torque control, and said computation element altering means (171)

is means for altering the computation element for torque control based on the obtained alteration data.

6. A signal processing system for a construction machine according to Claim 1, wherein:

    said fuel injection control means (70B, 70Ba) is means for controlling the fuel injection state of said fuel injection device (14) based on the target revolution speed and the actual revolution speed by using a predetermined computation element for injection control; and

    said communication control means (70C) is means for obtaining, from said external terminal (150), alteration data for altering the computation element for injection control, and said computation element altering means (181) is means for altering the computation element for injection control based on the obtained alteration data.

7. A signal processing system for a construction machine according to Claim 1, wherein:

    said pump torque control means (7, 8, 32, 70A, 70Aa) is means for controlling the maximum absorption torque of said hydraulic pump (1, 2) based on the target revolution speed and the actual revolution speed by using a predetermined computation element for torque control;

    said fuel injection control means (70B, 70Ba) is means for controlling the fuel injection state of said fuel injection device (14) based on the target revolution speed and the actual revolution speed by using a predetermined

computation element for injection control; and  
said communication control means (70C) is means for  
obtaining, from said external terminal (150), alteration  
data for altering the computation element for torque control  
and the computation element for injection control, and said  
computation element altering means (171, 181) are means for  
altering the computation element for torque control and the  
computation element for injection control based on the  
obtained alteration data.

8. A signal processing system for a construction machine  
according to Claim 1, wherein:

    said signal processing system further comprises  
information collecting means (172, 182) for collecting  
various items of information including the detected  
environment signals from said environment detecting means  
(75-83); and

    said communication control means (70C) outputs the  
various items of information obtained by said information  
collecting means to said external terminal (150) via  
communication.

9. A signal processing system for a construction machine  
according to Claim 8, wherein:

    said signal processing system further comprises  
operation detecting means (73-1, 73-2, 84-1, 84-2) for  
detecting status variables related to the operating state of  
said prime mover (10) or said hydraulic pump (1, 2) and

outputting corresponding detected signals; and  
said information collecting means (172, 182) is means  
for collecting various items of information including the  
detected environment signals from said environment detecting  
means (75-83) and detected operation signals from said  
operation detecting means.

10. A signal processing system for a construction machine  
according to any one of Claims 1 to 9, wherein said  
communication control means (70C) performs communication  
with respect to said external terminal (150) via a  
communication line.

11. A signal processing system for a construction machine  
according to any one of Claims 1 to 9, wherein said  
communication control means (70C) performs communication  
with respect to said external terminal (150) in a wireless  
manner.

12. A signal processing system for a construction machine  
according to Claim 1, wherein said environment detecting  
means (75-83) are means for detecting at least one of  
environment factors including an intake pressure, an intake  
temperature, an exhaust temperature, an exhaust pressure, a  
cooling water temperature, a lubricant pressure and a  
lubricant temperature of said prime mover, an atmospheric  
pressure, a fuel temperature, and a hydraulic fluid  
temperature.